

AMENDMENT TO THE CLAIMS

1. (currently amended) A cover for temperature regulation of an electrical energy storage cell, the cover comprising:

a first layer of thermally conductive material that is shaped to conform to a cylindrical portion of an outer surface of the electrical energy storage cell, the first layer terminating at first layer ends that are on the cylindrical portion of the outer surface of the electrical energy storage cell, and the first layer having a first thickness and a first value of thermal conductivity; and

a second layer of thermally insulating material that is shaped to cover an outer surface of the first layer and that extends beyond the outer surface to cover the first layer ends, the second layer having a second thickness and a second value of thermal conductivity; and the first and second thicknesses and the first and second values of thermal conductivity conforming the cover to a combustible atmosphere temperature classification that specifies an outer surface temperature during a short circuit of the electrical energy storage cell, the cover controlling the outer surface temperature of the combined cover and electrical energy storage cell such that the combined cover and electrical energy storage cell comprise intrinsically safe equipment.

2. (previously presented) The cover of Claim 1 wherein the electrical energy storage cell produces heat at a hot spot during the short circuit and the first layer of material spreads flow of the heat over a portion of the outer surface of the first layer that is larger than the hot spot and the second layer of material retards flow of the heat to an outer surface of the second layer.

3. (previously presented) The cover of Claim 1 wherein the temperature of the outer surface of the second layer has a measured maximum temperature of 130 degrees centigrade or less during the short circuit condition.

4. (original) The cover of Claim 1 wherein the first layer of material comprises aluminum.
5. (original) The cover of Claim 1 wherein the first layer of material comprises copper.
6. (original) The cover of Claim 1 wherein the second layer of material comprises heat-shrink tubing.
7. (original) The cover of Claim 1 wherein the second layer of material comprises elastic material.
8. (previously presented) The cover of Claim 1 wherein the first layer comprises two thermally conductive half-shells that each cover one side of a round surface of the energy storage cell.
9. (currently amended) A battery for use in a combustible atmosphere, comprising:
 - a plurality of electrical energy storage cells that comprise at least one hot spot during a short circuit, each cell being covered by a first layer of thermally conductive material that has a first thickness and a first value of thermal conductivity and that is shaped to conform to a cylindrical portion of an outer surface of the electrical energy storage cell, the first layer terminating at first layer ends that are on the cylindrical portion of the outer surface of the electrical energy storage cell, the first layer being covered by a second layer of thermally insulating material, the second layer preventing contact between the combustible gas and the first layer, and the second layer being shaped to conform to an outer surface of the first layer, the second layer having a second thickness and a second value of thermal conductivity, and the first and second thicknesses and the first and second values of thermal conductivity conform the battery to a combustible atmosphere temperature classification that specifies an outer surface temperature during a short circuit of the electrical energy storage cell;

a protective device including a fusible link; and
electrical interconnections that interconnect the plurality of electrical energy storage cells
in a series circuit with the protective device, the combination of the first and
second layers and the protective device rendering the battery intrinsically safe.

10. (original) The battery of Claim 9 further comprising: a plastic resin shell shaped to receive
the plurality of covered cells and the protective device.

11. (previously presented) The battery of Claim 10 wherein the plastic resin shell includes plastic
resin separation bars positioned between the cells and the electrical interconnections to reduce
shorting.

12. (cancelled)

13. (cancelled)

14. (cancelled)

15. (cancelled)

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (new) An apparatus, comprising:

a data acquisition unit; and

a battery for the data acquisition unit, comprising:

a plurality of electrical energy storage cells that comprise at least one hot spot during a short circuit, each cell being covered by a first layer of thermally conductive material that has a first thickness and a first value of thermal conductivity and that is shaped to conform to a cylindrical portion of an outer surface of the electrical energy storage cell, the first layer terminating at first layer ends that are on the cylindrical portion of the outer surface of the electrical energy storage cell, the first layer being covered by a second layer of thermally insulating material, the second layer preventing contact between the combustible gas and the first layer, and the second layer being shaped to conform to an outer surface of the first layer, the second layer having a second thickness and a second value of thermal conductivity, and the first and second thicknesses and the first and second values of thermal conductivity conform the battery to a combustible atmosphere temperature classification that specifies an outer surface temperature during a short circuit of the electrical energy storage cell;

a protective device including a fusible link; and

electrical interconnections that interconnect the plurality of electrical energy storage cells in a series circuit with the protective device.

- 25. (new) The apparatus of Claim 24 wherein the apparatus is portable.
- 26. (new) The apparatus of Claim 25 wherein the apparatus is handheld.
- 27. (new) The apparatus of Claim 24 wherein the apparatus is intrinsically safe.
- 28. (new) The apparatus of Claim 24 wherein the short circuit is external to the battery.
- 29.(new) The apparatus of Claim 24 wherein the electrical energy storage cells are rechargeable.

30. (new) An apparatus, comprising:

a calibrator; and

a battery for the calibrator, comprising:

a plurality of electrical energy storage cells that comprise at least one hot spot during a short circuit, each cell being covered by a first layer of thermally conductive material that has a first thickness and a first value of thermal conductivity and that is shaped to conform to a cylindrical portion of an outer surface of the electrical energy storage cell, the first layer terminating at first layer ends that are on the cylindrical portion of the outer surface of the electrical energy storage cell, the first layer being covered by a second layer of thermally insulating material, the second layer preventing contact between the combustible gas and the first layer, and the second layer being shaped to conform to an outer surface of the first layer, the second layer having a second thickness and a second value of thermal conductivity, and the first and second thicknesses and the first and second values of thermal conductivity conform the battery to a combustible atmosphere temperature classification that specifies an outer surface temperature during a short circuit of the electrical energy storage cell;

a protective device including a fusible link; and

electrical interconnections that interconnect the plurality of electrical energy storage cells in a series circuit with the protective device.

31. (new) The apparatus of Claim 30 wherein the apparatus is portable.

32. (new) The apparatus of Claim 31 wherein the apparatus is handheld.

33. (new) The apparatus of Claim 30 wherein the apparatus is intrinsically safe.

- 34. (new) The apparatus of Claim 30 wherein the short circuit is external to the battery.
- 35. (new) The apparatus of Claim 30 wherein the electrical energy storage cells are rechargeable.